MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

BIE2024 – INTERMEDIATE MICROECONOMICS

(All sections / Groups)

16th October 2015
3 pm - 5 pm
(2 Hours)

INSTRUCTION TO STUDENT

1. This Question paper consists of 8 pages including cover page with **TWENTY(20)** Multiple Choice Questions from Section A and **FOUR** (4) Short Structured Questions from Section B

2. Candidates **MUST** attempt **ALL** questions. Section A carries 20 marks and Section B carries 80 marks and the distribution of the marks for each question is as given.

3. Please shade all your answers in the OCR for Section A and write all your answers in the Answer Booklet provided for Section B.

SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

Answer ALL questions on the multiple choice answer sheet provided.

1. Economic models are most useful in
   A. predicting changes in one variable due to a change in one or more other variables.
   B. predicting the direction of the stock market.
   C. explaining the future with the past.
   D. generating un testable hypotheses.

2. Economists make simplifying assumptions to
   A. understand extremely complex phenomenon.
   B. build a model that is as close to the real world as possible.
   C. focus on the variables that are important to an economic theory.
   D. A and C

3. Consider the demand function Qd = 150 - 2P. The effects of other determinants of Qd is reflected in
   A. the intercept of the function.
   B. the slope of the function.
   C. neither the slope nor the intercept of the function.
   D. in both the slope and the intercept of the function.

4. The inverse supply curve of coffee beans equals P = -5 - 2rain + Qs, where rain equals the number of inches of rain per year. How much does quantity supplied change when rain increases from 30 inches to 40 inches per year?
   A. Qs decreases by 40.
   B. Qs increases by 40.
   C. Qs increases by 30.
   D. Qs decreases by 30.

5. Lionfish is an aquatic invasive species in the southeastern U.S. and the Caribbean. Current removal policies focus on harvesting the lionfish for human consumption. However, a fishing license is required to fish in most southern states. Assume the supply of fishing licenses is Qs = 50 + 0.05L + 40P, where L = lionfish population and P = price of a fishing license, and the demand for fishing licenses is Qd = 1400 – 60P. What is the equilibrium price and quantity of fishing licenses when L = 1,000?
   A. P = \$8.5, Q = 890
   B. P = \$13, Q = 620
   C. P = \$13.5, Q = 590
   D. P = \$13.5, Q = 591

Continued...

6. Assume that there are only three suppliers for luxury sports cars in the United States with their inverse supply functions are $P = -10 + 5Q_{s_1}$, $P = 20 + 5Qs_2$, $P = 5Qs_3$ What is total market supply?
   A. $P = 10 + 21Qs$
   B. $Qs = -2 + \frac{P}{15}$
   C. $Qs = 6 + \frac{P}{15}$
   D. $Qs = -2 + \frac{7P}{15}$

7. A player can choose among three strategies: T, M, and B. Nevertheless, strategy B is dominated by Strategy T. This means that
   A. Strategy T is always played.
   B. Strategy B is never played.
   C. Strategy B will be part of Nash equilibrium.
   D. Strategy M is never played.

8. If the supply curve for orange juice is estimated to be $Q = 40 + 2p$, then, at a price of $2, the price elasticity of supply is
   A. .01.
   B. .09.
   C. 1.
   D. 11.

9. If Johnny likes homework (H) but hates exercise (E), which of the following might best represent his utility function for homework and exercise?
   A. $U = H + E$
   B. $U = H/E$
   C. $U = H^2 + \sqrt{E}$
   D. $U = H^2 \times \sqrt{E}$

10. John's income is $500, the price of food (F) is $2 per unit, and the price of shelter (S) is $100. Which of the following represents his budget constraint?
    A. $500 = 2F + 100S$
    B. $F = 250 - 50S$
    C. $S = 5 - .02F$
    D. All of the above.

Continued...

11. Joey cuts lawns during the summer. Let q equal the number of acres mowed per day, and let L equal the number of hours worked per day. Joey never works more than eight hours per day, and during that time his short-run production function is $q = 0.2 * L$. Which of the following statements is **FALSE**?
    A. Joey's marginal productivity equals his average productivity.
    B. Joey's marginal productivity diminishes by 0.2 for each additional hour worked.
    C. Joey's average productivity is constant.
    D. Joey's marginal productivity is constant.

12. For a linear production function, $q = f(L,K) = 4L + 2K$, what is the short-run production function given that capital is fixed at $\bar{K} = 50$?
    A. $q = 4L + 100$
    B. $q = 4L + 50$
    C. $q = 4L$
    D. $q = 104$

13. One way to explain the convexity of isoquants is to say that
    A. as labor increases and capital decreases, MP_L rises while MP_K falls.
    B. as labor increases and capital decreases, MP_L falls while MP_K rises.
    C. as labor increases and capital decreases, MP_L and MP_K both fall.
    D. as labor increases and capital decreases, MP_L and MP_K both rise.

14. How much labor does a firm require to produce $q = 1000$ when capital is fixed at 5 and they have a production function equal to $q = 200L^{0.5} K^{0.5}$?
    A. $L = 5$
    B. $L = 2.5$
    C. $L = 200$
    D. $L = 2.25$

15. Sam's Lawn cutting Service rents office space from Sam's dad for $300 per month. Sam's dad is thinking of increasing the rent to $400 per month. As a result Sam's marginal cost of cutting grass will
    A. increase by $100 divided by the amount of grass cut.
    B. increase by $100.
    C. decrease by $100.
    D. Not change.

Continued...

16. if the short-run costs for a company is $C = 40 + 4q + q^2$. Determine the output level, that q, is average cost minimized
    A. $q = 2\sqrt{10}$.
    B. $q = 0$.
    C. $q = 40$.
    D. $q = 2$.

17. Suppose $TC = 10 + (0.1 * q^2)$. If $p = 10$, the firm's profit maximizing level of output is
    A. 40.
    B. 50.
    C. 60.
    D. 0, since the firm will shut down.

18. When two people are on the contract curve, the allocation of goods
    A. cannot be improved.
    B. is pareto efficient.
    C. is such that neither individual can be made better off without making the other worse off.
    D. All of the above.

19. At an output level of 100, a monopolist faces MC = 15 and MR = 17. At output level q = 101, the monopolist's MC = 16 and MR = 15. To maximize profits, the firm
    A. Should produce 100 units.
    B. Should produce 101 units.
    C. Cannot maximize profits.
    D. is not a monopoly.

20. There are only two firms in an industry with demand curves $q_1 = 30 - P$ and $q_2 = 30 - P$. Both have no fixed costs and each has a marginal cost of 10 per unit produced. If they are profit maximizing price takers, each produces 20 units and sells them at a price of 10 . Each firm will earn zero economic profit. If they formed a cartel, the profit maximizing price is
    A. 10.
    B. 15.
    C. 20.
    D. 25.

SECTION B: Structured Questions (Total: 80 marks)

Answer ALL questions in the answer booklet provided.

Question 1

A) i. Write the equation for the marginal product of capital for each of the following production functions. (3 Marks)

a. $Q = K + L$

b. $Q = 4K^{0.5}L$

c. $Q = 5L^{0.5}K - L$

ii. Using the production function from part (c) in Question A, assume that capital is fixed at two units, at what point does MP_L reach zero? (3 Marks)

iii. Suppose inputs are only substitutable at two units of labor for every one unit of capital.

a. What would be the equation for the production function? (2 Marks)

b. What is the average and marginal product of labor in this case? (2 Marks)

B) Suppose the following information is known about a market:

- Sellers will not sell at all below a price of $2.
- At a price of $10, any given seller will sell 10 units.
- There are 100 identical sellers in the market.

Use the above information to derive the market supply curve. (assume it is a linear supply curve), (4 Marks)

C) Assume the market demand for wheat may be written as Q = 45 - 2p + 0.3Y + 1pb where Y refers to income and pb refers to the price of barley. Assume that wheat and barley both sell for $1, and income is $20. Calculate the price elasticity, cross price elasticity and income elasticity of demand for wheat. (6 Marks)

(Total: 20 marks)

Question 2

A) Joe has \$10 per week to allocate between these commodities. The price of newspapers is \$0.50. At the initial price for arcade games of \$0.25, Joe purchases 10 newspapers and plays 20 games. When the price of games increases to \$0.50, Joe purchases 8 newspapers and plays 12 games. When the price of games increases again to \$0.75, Joe buys 5 papers and plays 10 games. Draw a graph with arcade games on the horizontal axis and newspapers on the vertical axis

i) Use the above information draw the utility maximizing points on the graph. (3 Marks)

ii) Draw the price-consumption curve. (2 Marks)

iii). Draw the individual demand curve for arcade games. (2 Marks)

iv). Calculate Joe's elasticity of demand for arcade games for the following.

i) Between \$0.25 and \$0.50,

ii) Between \$0.50 and \$0.75. (3 Marks)

B. Two firms, A and B, are simultaneously considering entry into a new market. If neither enters, both earn zero. If both enter, they both lose 100. If one firm enters, it gains 50 while the other earns zero.

i) Set up the payoff matrix for this game and determine if any Nash equilibrium exist. (6 Marks)

ii) Please predict the outcome? (2 Marks)

iii) What if firm A gets to decide first? (2 Marks)

(Total: 20 marks)

Question 3

A) A firm has the following total cost function $TC = 100 + 2q^2$. If price equals \$20,

i) What is the firm's output decision? (3 Marks)

ii) What are its short-run profits? (3 Marks)

B) There are 1000 identical wheat farmers. For each, $TC = 10 + q^2$. Market demand is $Q = 600{,}000 - 100p$.

i) Derive the short-run equilibrium Q, q, and p. (4 Marks)

ii) Does the typical firm earn a short-run profit? (4 Marks)

C) Suppose market demand is $Q = 1000 - 4p$. If all firms have $LRAC = 50 - 5q + q^2$, how many identical firms will there be when this industry is in long-run equilibrium? (6 Marks)

(Total: 20 marks)

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Question 4

A) The market demand can be represented as p = 100 - 2Q. There are 10 identical firms producing an identical product. The total cost function for each firm is $TC = 50 + q^2$.

i) Differentiate the competitive outcome with the cartel outcome. (3 Marks)

ii) What is the individual firm's incentive to cheat on the cartel? (2 Marks)

B) Assume a monopolist faces a market demand curve $P = 100 - 2Q$ and has the short-run total cost function $C = 640 + 20Q$.

i) Determine the profit-maximizing level of output? (2 Marks)

ii) Calculate the amount of profits? (2 Marks)

iii) Graph the marginal revenue, marginal cost, and demand curves, and show the area of deadweight loss in the graph. (3 Marks)

iv) Calculate the price and output if the firm priced at socially efficient (competitive) levels? (2 Marks)

v) How much is the magnitude of the deadweight loss caused by monopoly pricing? (1 Mark)

C) Why does not a monopolist produce a quantity where a demand curve is inelastic? Explain (5 Marks)

(Total: 20 marks)

End of Paper.